Appl. No. 10/688,145
Amdt. dated 5/8/07
Reply to Office Action of 1/8/07

PATENT
Docket: 030349

IN THE CLAIMS

Please amend the claims as follows:

1. - 26. (Cancelled).

27. (New) An integrated circuit comprising:

a despreading unit operative to despread input samples and provide despread symbols with a first spreading factor;

a channel compensation unit operative to multiply the despread symbols with channel estimates and provide demodulated symbols; and

a symbol combiner operative to combine groups of demodulated symbols by combining at least one accumulated demodulated symbol with a current demodulated symbol to obtain recovered data symbols for a channel with a second spreading factor that is an integer multiple of the first spreading factor.

28. (New) The integrated circuit of claim 27, wherein the second spreading factor is two times the first spreading factor.

29. (New) The integrated circuit of claim 27, wherein the symbol combiner is operative to combine groups of demodulated symbols to obtain recovered data symbols for a different channel with the second spreading factor.

30. (New) The integrated circuit of claim 27, wherein the channel compensation unit is operative to multiply each of the despread symbols with a channel estimate for one transmitter antenna to obtain one demodulated symbol for the despread symbol.

31. (New) The integrated circuit of claim 30, wherein the symbol combiner is operative to combine groups of two demodulated symbols for two symbol periods to obtain the recovered data symbols for the channel.

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6 32. (New) The integrated circuit of claim 27, wherein the channel compensation unit is operative to multiply each of the despread symbols with channel estimates for two transmitter antennas to obtain two demodulated symbols for the despread symbol.

7 33. (New) The integrated circuit of claim 32, wherein the symbol combiner is operative to combine groups of four demodulated symbols for four symbol periods to obtain the recovered data symbols for the channel.

8 34. (New) The integrated circuit of claim 27, wherein the symbol combiner is operative to combine groups of demodulated symbols based on space time transmit diversity (STTD).

9 35. (New) The integrated circuit of claim 27, wherein the channel is a high-speed physical downlink shared channel (HS-PDSCH) in Wideband Code Division Multiple Access (W-CDMA).

10 36. (New) The integrated circuit of claim 27, wherein the channel is a packet data channel (PDCH) in IS-2000.

11 37. (New) A device in a Code Division Multiple Access (CDMA) communication system, comprising:

a despreading unit operative to despread input samples and provide despread symbols with a first spreading factor;

a channel compensation unit operative to multiply the despread symbols with channel estimates and provide demodulated symbols; and

a symbol combiner operative to combine groups of demodulated symbols by combining at least one accumulated demodulated symbol with a current demodulated symbol to obtain recovered data symbols for a channel with a second spreading factor that is an integer multiple of the first spreading factor.

12 38. (New) The device of claim 37, wherein the channel compensation unit is operative to multiply each despread symbol with channel estimates for two transmitter

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antennas to obtain two demodulated symbols for the despread symbol, and wherein the symbol combiner is operative to combine groups of four demodulated symbols for four symbol periods to obtain the recovered data symbols for the channel.

13 39. (New) An apparatus in a Code Division Multiple Access (CDMA) communication system, comprising:

means for despreading input samples to obtain despread symbols with a first spreading factor;

means for multiplying despread symbols with channel estimates to obtain demodulated symbols; and

means for combining groups of demodulated symbols by combining at least one accumulated demodulated symbol with a current demodulated symbol to obtain recovered data symbols for a channel with a second spreading factor that is an integer multiple of the first spreading factor.

14 40. (New) A processor readable media for storing instructions operable in a wireless device to:

despread input samples to obtain despread symbols with a first spreading factor;

multiply the despread symbols with channel estimates to obtain demodulated symbols; and

combine groups of demodulated symbols by combining at least one accumulated demodulated symbol with a current demodulated symbol to obtain recovered data symbols for a channel with a second spreading factor that is an integer multiple of the first spreading factor.

15 41. (New) A method of performing data demodulation in a Code Division Multiple Access (CDMA) communication system, comprising:

despreading input samples to obtain despread symbols with a first spreading factor;

multiplying the despread symbols with channel estimates to obtain demodulated symbols; and

combining groups of demodulated symbols by accumulating demodulated symbols and by combining the accumulated symbols with the current demodulated symbols to obtain

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recovered data symbols for a channel with a second spreading factor that is an integer multiple of the first spreading factor.

16   42. (New) The method of claim 15, wherein the second spreading factor is two times the first spreading factor.

17   43. (New) The method of claim 15, wherein each of the despread symbols is multiplied with a channel estimate for one transmitter antenna to obtain one demodulated symbol for the despread symbol.

18   44. (New) The method of claim 17, wherein the combining step combines groups of two demodulated symbols for two symbol periods to obtain the recovered data symbols for the channel.

19   45. (New) The method of claim 15, wherein each of the despread symbols is multiplied with channel estimates for two transmitter antennas to obtain two demodulated symbols for the despread symbol.

20   46. (New) The method of claim 15, wherein the combining step combines groups of demodulated symbols based on space time transmit diversity (STTD).

21   47. (New) The method of claim 15, wherein the channel is a high-speed physical downlink shared channel (HS-PDSCX) in Wideband Code Division Multiple Access (W-CDMA).

22   48. (New) The method of claim 15, wherein the channel is a packet data channel (PDCH) in IS-2000.